Process for Transition of Uranium Mill Tailings Radiation Control Act Title II Disposal Sites to the U.S. Department of Energy Office of Legacy Management for Long-Term Surveillance and Maintenance

June 2009

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Contents

Abbreviations iii
1.0 Purpose 1
2.0 Introduction 1
3.0 Transition Process 1
3.1 Principal Transition Activity Tracks 3
3.2 Principal Parties 3
3.2.1 Regulator 3
3.2.2 Licensee 5
3.2.3 Long-Term Custodian 5
3.2.4 U.S. Army Corps of Engineers 5
3.2.5 U.S. Bureau of Land Management 5
3.2.6 Other Stakeholders 5
3.3 Communications Between LM and Other Parties 6
3.4 Statutory and Regulatory Basis 6
4.0 Project Management Track 6
4.1 DOE Initiates Transition Process 7
4.2 Transition Team 7
4.3 Kick-off Meeting 7
4.4 Task Order Plan 7
4.5 Other Tracks 8
4.6 Monitoring and Controls 8
4.7 Information Dissemination 8
4.8 Reuse 9
4.9 Transition Readiness Review 9
5.0 Regulatory Closure Track 10
5.1 Evaluation of Surface Remedy Implementation 11
5.2 Evaluation of Groundwater Remedy Implementation 11
5.3 Site Visit 11
5.4 LTS&M Requirements 12
5.5 LTSP 12
5.6 Long-Term Care Fee 13
5.7 Specific License Termination 13
6.0 Real Property Track 13
6.1 Request for Realty Services 13
6.2 U.S. Army Corps of Engineers 14
6.3 Final Site Boundary 14
6.4 Real Property Interests in Fee 17
6.5 Federal Real Property Interests 18
6.6 Final Title Package and Warranty Deed 18
6.7 Certificate of Inspection and Possession 18
6.8 Facilities Information Management System 19
7.0 Environmental and Geospatial Data Track 19
7.1 Data Requirements 19
7.1.1 Official Land Survey and Land Agreements 20
7.1.2 Site Mapping Features and Metadata 20
7.1.2.1 Imagery 20

7.1.2.2 Existing and Historical Features 20
7.1.3 Engineered Systems and Structures 21
7.1.4 Environmental Monitoring Data 21
7.1.5 Groundwater Flow, Fate and Transport Models 21
7.2 LM Databases 21
7.3 Support Transition Needs 21
7.4 GEMS 22
8.0 Documents/Information for LTSP Preparation and Permanent Site Records 22
9.0 Project Management and Control Tools 23
9.1 Project Schedule 23
9.2 UMTRCA Title II Transition, Status, and Remaining Scope—Monthly Updates 23
9.3 Site-Specific Punchlist 23
9.4 Site Transition Framework 24
9.5 Title II Transition Checklist 24
10.0 Quality Assurance 24
11.0 Lessons Learned 25
12.0 References 28

Figures

Figure 1. Composite Transition Process Flowchart 4
Figure 2. Project Management Track Flowchart 7
Figure 3. Regulatory Closure Track Flowchart 10
Figure 4. Real Property Track Flowchart 13
Figure 5. Split Rock Boundaries and Land Agreements 15
Figure 6. Environmental and Geospatial Data Track Flowchart 19

Attachments

Attachment 1 Project Schedule
Attachment 2 Request for Realty Services
Attachment 3 Example of a Transition Status Summary: UMTRCA Title II Transition, Status, and Remaining Scope—Monthly Update
Attachment 4 Example of a Site-Specific Transition Punchlist—Maybell West, Colorado
Attachment 5 Site Transition Framework
Attachment 6 Title II Transition Checklist

Abbreviations

ACL	alternate concentration limit
BLM	U.S. Bureau of Land Management
CAD	computer-aided design
CFR	*Code of Federal Regulations*
DOE	U.S. Department of Energy
FIMS	Facilities Information Management System
GEMS	Geospatial Environmental Mapping System
GIS	geographic information system
ICs	institutional controls
LM	Office of Legacy Management
LMS	Legacy Management Support
LTS&M	long-term surveillance and maintenance
LTSP	long-term surveillance plan
NRC	U.S. Nuclear Regulatory Commission
RRS	Request for Realty Services
SEEPro	Site Environmental Evaluation for Projects
SME	subject matter expert
UMTRCA	Uranium Mill Tailings Radiation Control Act
USC	*United States Code*
USACE	U.S. Army Corps of Engineers

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1.0 Purpose

This document describes the process that the U.S. Department of Energy (DOE) Office of Legacy Management (LM) will use as guidance for assuming perpetual responsibility for a closed uranium mill tailings site. The process specifically addresses sites regulated under Title II of the Uranium Mill Tailings Radiation Control Act (UMTRCA) but is applicable in principle to the transition of sites under other regulatory structures, such as the Formerly Utilized Sites Remedial Action Program.

2.0 Introduction

UMTRCA established that a government agency will provide perpetual care for closed uranium and thorium ore-processing sites that were operating under a specific license in 1978 or licensed thereafter. Transition from a private licensee to LM invokes a process to ensure that LM concurs in regulatory findings that

- The site was constructed in accordance with approved plans and specifications;
- The remedies are sound and are implemented to standards that ensure the site is and will remain protective of human health and the environment;
- LM obtains a defensible and protective real property position to control land uses that may result in unacceptable risk; and
- Post-closure maintenance needs are of a routine nature, and no major interventions are forecast that transfer health or cost risk to LM.

"Transition" refers to the process of preparing to assume responsibility for a reclaimed uranium-ore-processing mill site. The process begins approximately 2 years before the anticipated date of termination of the specific mill license, and the goal is to complete LM preparations as the U.S. Nuclear Regulatory Commission (NRC) is ready to concur that reclamation is complete.

3.0 Transition Process

The transition process involves

- Meeting with licensee and regulator representatives to reach consensus on the transition process.
- Capturing and managing site knowledge and information.
- Developing a technical basis to concur with site closure, consisting of the following elements:
  - — Review of reclamation plans, as-built drawings, and verification documentation.
  - — Review of groundwater modeling parameters and predictions.
  - — Review of historical groundwater monitoring data against established site standards.
  - — Verification of physical conditions with a site visit.

- Ensuring conformance with applicable laws, regulations, and DOE orders, guidance, and policy.
- Developing a long-term surveillance plan (LTSP), webpage, and fact sheet, and conducting appropriate stakeholder outreach and support.
- Evaluating real property requirements against conditions.
- Compiling transition actions into a site-specific action list ("punchlist," using the Title II Transition Checklist and Site Transition Framework as guidance) and tracking progress through regular communication with the licensee and regulator.
- Consulting with NRC and the agreement states on site transfer boundaries, deficiencies, regulatory compliance, and the long-term care fee.

The transition process typically begins when a licensee has completed reclamation of surface materials and has a groundwater remedy at least in regulatory review. The licensee will notify LM of intent to transition the site. LM attempts to start the process requires about 2 years before the site's regulatory closure to complete. The transition process schedule (GANTT chart, Attachment 1) shows the relative timing of transition activities, sequential dependencies, and estimated durations for individual tasks. Not all elements of this process will apply to the transfer of every Title II site. The actual transition process for a site will vary depending on specific site conditions.

LM will commence transition activities approximately 2 years before the scheduled termination of the specific license. Transition activities are initiated by consensus among the licensee, the regulators, and LM that license termination can be achieved at the end of the transition period. All parties monitor site conditions and the regulatory closure process to determine when transition activities should begin. LM monitors site status through communication with licensees, state regulators as applicable, and regular meetings with NRC.

LM and the Legacy Management Support (LMS) contractor site leads will coordinate a kick-off meeting to initiate transition activities. This will be the initial meeting of the transition project team. The team will typically offer skill and expertise in site construction and long-term stewardship practices, real property, environmental compliance, hydrology and geology, records and geospatial data management, public affairs, and project management.

Transition activities will not begin until several conditions are considered and understood.

- **Physical construction should be complete.** The regulator should have concurred in completion of surface (e.g., tailings and soils) reclamation. LM will review the physical closure and participate with the regulator in inspections. Any concerns raised by LM should be accepted for resolution by the regulator and the licensee, and resolution should be achievable within the transition period. Pending regulator concurrence in construction completion, along with site knowledge, may be judged sufficient to satisfy this criterion. Risk of schedule slippage resulting from construction problems is low.
- **Groundwater compliance should be achieved.** This often entails application of alternate concentration limits (ACLs). Final site boundaries cannot be established until groundwater modeling is complete and accepted by the regulator. Typically, the greatest modeled extent

of groundwater contamination must be contained within the site boundary.[1] LM will review site hydrology and groundwater conditions. LM may evaluate the modeling to enable future validation of the model and to increase confidence that future groundwater conditions will not deteriorate and force LM into corrective action.

Groundwater issues may take years to resolve. Long lead-time activities include additional modeling and regulator reviews and concurrence. Therefore, real property transition activities should not be initiated unless resolution is probable and all parties have made a commitment to maintain a resolution schedule.

- **Site boundaries are finalized**. Boundaries can then be established for long-term custody and care. Boundaries include both ownership and control boundaries. Other considerations for establishing the site boundary include buffer areas for engineered structures, proximity of recognized boundaries such as road rights-of-way and section lines, topography, and other site conditions such as the likelihood of unauthorized access. The regulator should request written LM concurrence in the final boundaries proposed by the licensee, as provided for in the *License Termination/Site Transfer Protocol Between the U.S. Department of Energy and the U.S. Nuclear Regulatory Commission* (DOE and NRC 1998).

3.1 Principal Transition Activity Tracks

Although the transition process entails activities by project management and numerous support groups, most transition activities occur along four principal and often parallel tracks. The tracks are:

- Project management,
- Regulatory closure,
- Real property, and
- Environmental and geospatial data.

A composite of the tracks is presented on Figure 1. The individual tracks are presented in following sections that describe the activities in greater detail.

3.2 Principal Parties

3.2.1 Regulator

NRC is authorized to control radioactive materials in the civilian sector. NRC may delegate these responsibilities to a state that establishes a program conforming to NRC requirements (an agreement state). NRC or an agreement state issues a license for production of uranium and possession of source and waste materials.

[1] Regulations allow protective measures other than ownership of land overlying contaminated groundwater if site operations started before 1978, when UMTRCA was enacted.

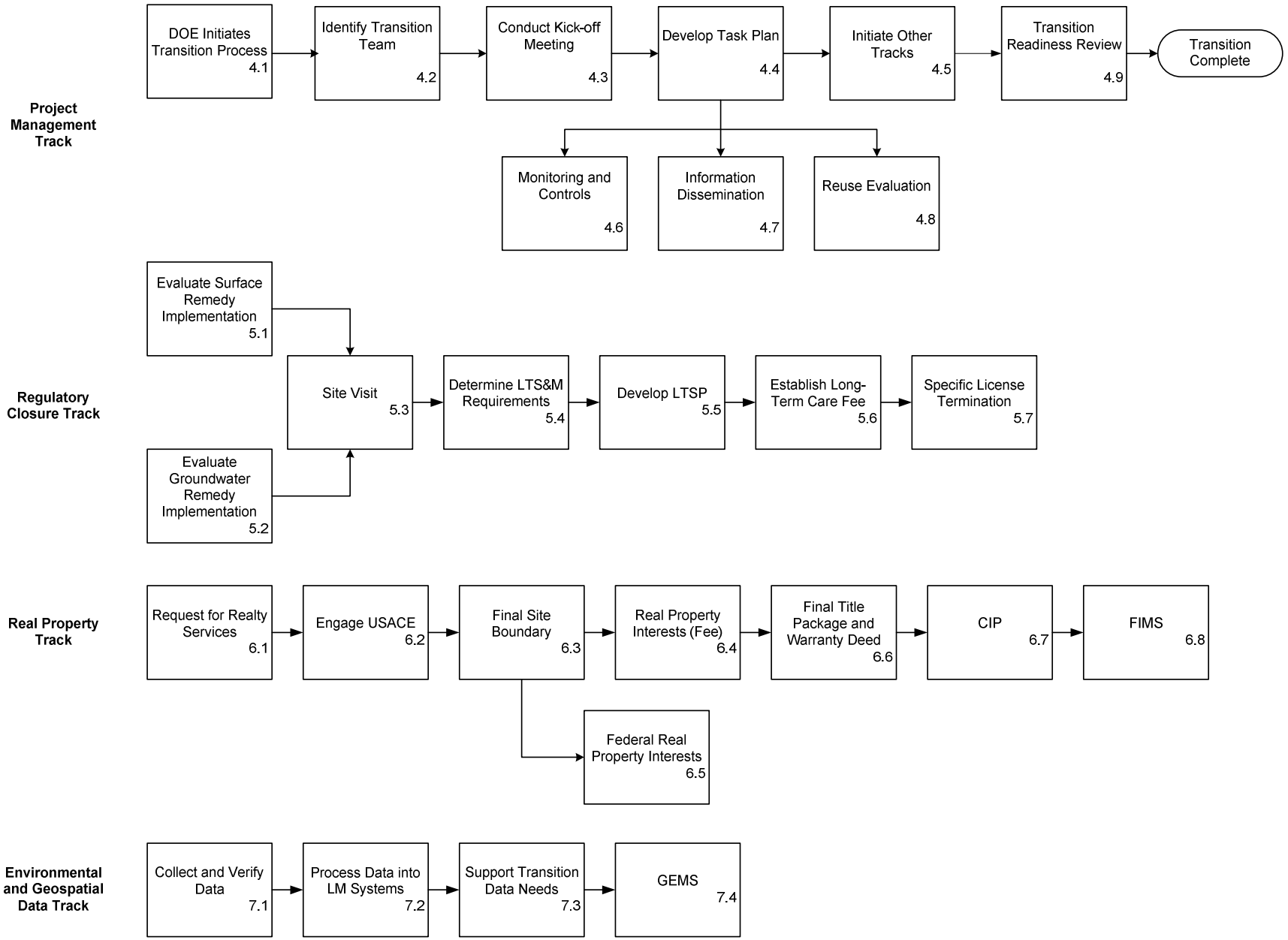

Figure 1. Composite Transition Process Flowchart

In agreement states, NRC has granted the state regulator authority to issue, oversee, and terminate byproduct materials licenses. The transition process is coordinated between NRC and the agreement state following Procedure SA-900, *Termination of Uranium Milling Licenses in Agreement States* (NRC 2002).

3.2.2 Licensee

NRC or an agreement state issues a specific license to a company to process uranium ore and possess the associated source and waste materials. The radioactive waste is regulated as 11e.(2) byproduct material under the Atomic Energy Act of 1954 (Title 42 *United States Code* Section 2011, et seq. [42 USC 2011]). The licensee operates the mill under the specific license until site reclamation is complete and the specific license is terminated.

3.2.3 Long-Term Custodian

The long-term custodian is responsible for maintaining a reclaimed uranium mill site to protect public health and the environment. DOE is designated by law and regulations as the long-term custodian of reclaimed UMTRCA Title II mill sites. DOE has assigned responsibility for this action to LM. The host state may assume these responsibilities, or the responsibilities may be assumed by another federal agency as designated by the President. NRC issues a general license to the long-term custodian. The DOE general license for the long-term care of Title II sites is codified at Title 10 *Code of Federal Regulations* Part 40.28 (10 CFR 40.28), and specific requirements are also established at 10 CFR 40 Appendix A.

3.2.4 U.S. Army Corps of Engineers

DOE has retained the U.S. Army Corps of Engineers (USACE) to complete all transactions necessary to acquire fee land and mineral estates from the licensee. DOE contracts with USACE to interact with the licensee to gather the requisite information that will enable USACE to review the title documents, render a title opinion, and prepare a warranty deed for transfer of the fee land to DOE.

3.2.5 U.S. Bureau of Land Management

Many of the Title II sites have both privately held and federal land and minerals that are under consideration for transfer. Typically, the U.S. Bureau of Land Management (BLM) has jurisdiction over the federal lands within the transfer boundaries of the Title II sites. DOE must apply to BLM for permanent withdrawal of the federal lands and minerals from BLM's inventory of public land and request the land to be placed under the jurisdiction of DOE.

3.2.6 Other Stakeholders

Numerous other parties may have an interest in the transition of the sites. These parties can include local government agencies, such as city and county governments, tribal agencies, and the general populace near the site. Adjoining landowners may have specific concerns, such as grazing and other potential reuses of the transferred land.

3.3 Communications Between LM and Other Parties

The LM staff will define the protocols and lines of communication among the LM/LMS transition team, the licensee, the site regulator, and other parties to the transition. Generally, LM will communicate directly with the regulator and licensee leads to make decisions and to address policy. LM realty officers will be the primary contact with USACE regarding real property actions and the fee land transfer. As directed by LM, the LMS contractor staff will communicate directly with counterparts in the licensee or regulator organizations to address technical issues. LM site leads will facilitate or concur in initial contact with the licensee, regulator organizations, and other parties to the transition and direct the LMS contractor staff to continue to work directly with technical counterparts or other parties. LMS site leads will be available to confer regularly with LM site leads.

LM and NRC staff will meet quarterly to discuss regulatory issues for UMTRCA sites that are in transition or already assigned to LM for long-term stewardship. LMS contractor staff may provide support to maintain a status sheet of NRC and DOE actions and commitments (referred to as a call log). Equivalent meetings are conducted with agreement state staffs on an as-needed basis.

3.4 Statutory and Regulatory Basis

Transition activities involving real property are based on complying with license requirements for site ownership and control at 10 CFR 40.28 and 10 CFR 40 Appendix A. Also applicable is UMTRCA (42 USC 7901 et seq.). Reclamation standards are at 40 CFR 192, “Health and Environmental Protection Standards for Uranium and Thorium Mill Tailings.”

4.0 Project Management Track

The purpose of the activities in the project management track is to manage the site transition process according to an approved project plan, to ensure interaction and information sharing among the parties to the transfer, and to manage the support functions and activities to culminate in a successful transfer. With the exception of the kick-off meeting, the activities in this track may occur continually, periodically, or on an as-needed basis. Activities that happen throughout the transition are steps such as planning and budgeting, information exchange, periodic transition team meetings, and issues tracking.

The first three actions in the transition process are shown on the Project Management Track (Figure 2). The other boxes on this flowchart do not reflect a linear process but are provided to indicate the functions that are required either continually or on an as-needed basis to maintain project schedule and budget.

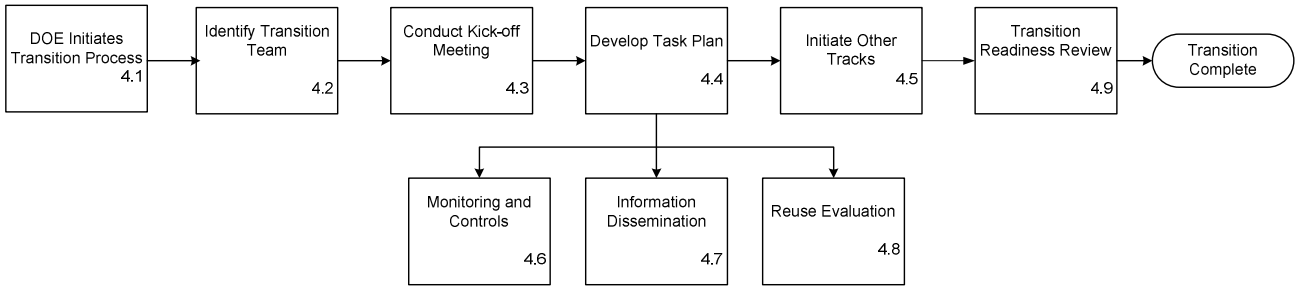

Figure 2. Project Management Track Flowchart

4.1 DOE Initiates Transition Process

In conversations with the licensee and the regulator, LM will determine a projected transfer date and will initiate the transfer process no less than 2 years prior to the projected date. In all likelihood, the transfer dates will slip later in the projected year or into following years. This slippage and the associated causes will be tracked using the established tracking tools discussed in Section 9, "Project Management and Control Tools."

4.2 Transition Team

The LM and LMS site leads begin the process by identifying the LM and LMS contractor support staff (technical, real property, records, environmental data, etc.) to serve on the team. The transition team will consist of the LM site lead, the LMS site lead, and the LMS support staff. The LMS site lead will identify needed expertise and resources and will work within the contractor organization to provide resources when needed. Each member of the LMS support staff will be a subject matter expert (SME) in his or her area of expertise and will be accountable for the actions in his or her area of responsibility.

4.3 Kick-off Meeting

Approximately 2 years before the projected transfer date, the LM site lead will set up a kick-off meeting among the internal transition team and all of the appropriate parties to the transition. The purpose of this meeting is to introduce the parties and to establish roles and responsibilities and lines of communication. At this meeting, the team will review the steps common to all transfers and identify issues that may need additional attention or that may impede the transition. The LMS staff will use the Title II Transition Checklist, described in Section 9.5 and included as Attachment 6, to determine transfer issues that should be included on the Site-Specific Punchlist, which is described in Section 9.3 and included as Attachment 4, and tracked to completion.

4.4 Task Order Plan

The LM site lead will provide direction that will be incorporated into a site transition task plan. The site transition task plan that defines the scope, schedule, and budget for known transition activities will be incorporated into an approved LMS Task Order Plan. The task plan will address all anticipated resource needs and will state assumptions that define limits to the project scope. The task plan will also be incorporated into the life-cycle baseline. This includes proposing

changes to the transition dates as reported in the *LM Site Management Guide* ("Blue Book") (DOE 2008, Rev.6), which reflects proposed transition dates for sites coming into LM.

4.5 Other Tracks

At this point in the transition process, each support group will be aware of transition issues and will address the actions and information needed in the groups' areas of expertise to result in a successful transition.

4.6 Monitoring and Controls

Once the task plan is established, the LMS site lead will implement several functions to ensure adequate monitoring and control of project scope and schedule. The LMS project manager and site lead will provide project management oversight and document project activities in conformance with LM procedures. The LM and LMS site leads will monitor the task plan and make adjustments for new information and changing conditions. The LM work authorization process will be followed to adjust the scope, schedule, and technical baseline. During the course of the transition, performance against the task plan will be continually monitored and reported.

During the transition process, additional issues or concerns commonly arise and delay the transfer past the projected transfer date. Should changes be needed, the LMS contractor will generate proposed changes and requested updates to the life-cycle baseline. Transition schedule changes may result from information acquired by the LMS contractor or LM staff. Baseline changes will be implemented in conformance with LM procedures. Baseline changes will be processed as soon as new information becomes available, and the LMS contractor will review the baseline for updates to the project baseline and Blue Book.

As unanticipated issues arise, the LM and LMS site leads may identify additional resource needs such as legal counsel or other specific SMEs.

4.7 Information Dissemination

The LMS Title II transition team will hold regular meetings to review the status of project activities, share developments, and ensure that the approach to transition is consistent across the various sites. At these meetings, LMS staff will review the status of site activities, coordinate activities between functional organizations, resolve issues, and confirm project performance and quality.

LM and LMS contractor transition meetings typically will be scheduled to occur before the quarterly meetings between LM and NRC staff. The LMS staff may support LM in drafting agendas for discussions with the other parties to the transfer and for the regular discussions between LM and NRC. At any time, LM site leads may request regular or unscheduled meetings with LMS staff or SMEs for status review or to resolve specific issues or concerns. If possible, to maintain awareness of all transition concerns, the LMS site lead should attend all meetings with LMS support staff.

The LMS project manager will provide the LM and LMS staff with regular status reports on all Title II site transition work. Each LMS site lead will maintain a site-specific punchlist to track

individual actions, responsibilities, and due dates. The tools used to track the status of Title II activities are further described in Section 9 and are provided in Attachments 3 and 4. Significant activities and task plan performance summaries are presented in monthly task order reports.

The LMS site lead will ensure that all records and information exchange occurs prior to the transfer. This includes all technical data needed to understand site conditions, all environmental monitoring data required for trending contaminant concentrations and addressing groundwater issues, and all as-built and land data needed to create an accurate database for mapping. This could include the licensee groundwater flow and contaminant fate and transport models so that modeling predictions can be recreated and validated against monitoring results.

Access to information is accomplished using the Records Management organization to provide document management services. Records Management representatives can provide an index of holdings for a given site. Principal site documents (e.g., design and completion reports, groundwater compliance plans, and regulator concurrences) will be posted to a common location on the LM intranet for access by LM and LMS contractor staff.

In coordination with the LM Public Affairs Office, as appropriate, the LM and LMS site leads will ensure that all stakeholder questions and concerns are addressed in a timely manner. When transition is complete, the LMS staff will ensure that a fact sheet is created and available to the public and that appropriate documentation is available to the public on the LM website.

4.8 Reuse

Reuse staff will be included in the transition team to begin evaluating each site for potential reuse. Approximately two years prior to the scheduled site transfer, the LM/LMS reuse team will begin evaluation of the transferring site. The reuse team will work with the LM and LMS site leads to ensure understanding of the final site conditions and to discuss viable reuse options. If reuse potential does not exist, this will be documented and no further action will be taken. If reuse potential does exist, LMS technical staff will incorporate reuse information into the LTSP with assistance from the reuse team, as needed.

After the LTSP is finalized and site transfer is complete, the LM and LMS reuse team will work with the transition team to evaluate all options, and the LM and LMS reuse team will develop a feasibility paper for the LM reuse lead to present to the LM site lead for consideration of further actions. The LM site manager manages implementation of any reuse action with assistance from the LM/LMS reuse team, as needed. A Request for Realty Services (RRS) may be initiated if support is required from the Real Property Management group. After implementation of reuse, the LM site lead will notify the LM reuse lead of the number of acres placed in reuse for tracking and reporting purposes. The LM reuse lead has responsibility for reporting acreage in reuse to applicable organizations and to LM management.

4.9 Transition Readiness Review

As site transition work nears completion and before license termination occurs, the LMS contractor will assemble the site transition team to conduct a transition readiness review, to which LM will be invited.

5.0 Regulatory Closure Track

This set of activities is designed to ensure that LM has no post-closure corrective action or nonroutine requirements to maintain protectiveness, integrity of engineered structures, or groundwater compliance. In addition, these activities will help LM maintain protectiveness and continued regulatory compliance. Therefore, these activities constitute one portion of the due diligence that LM will employ to ensure that no unforeseen or unfunded liabilities are transferred to the federal government. Activities in this track also support development of the LTSP, the regulatory document for post-closure care. This track includes the technical review of the remedy selection and execution, and interaction with the regulator to resolve any technical issues that affect post-closure site integrity, stewardship requirements, and stewardship costs. Figure 3 shows the activities in this track.

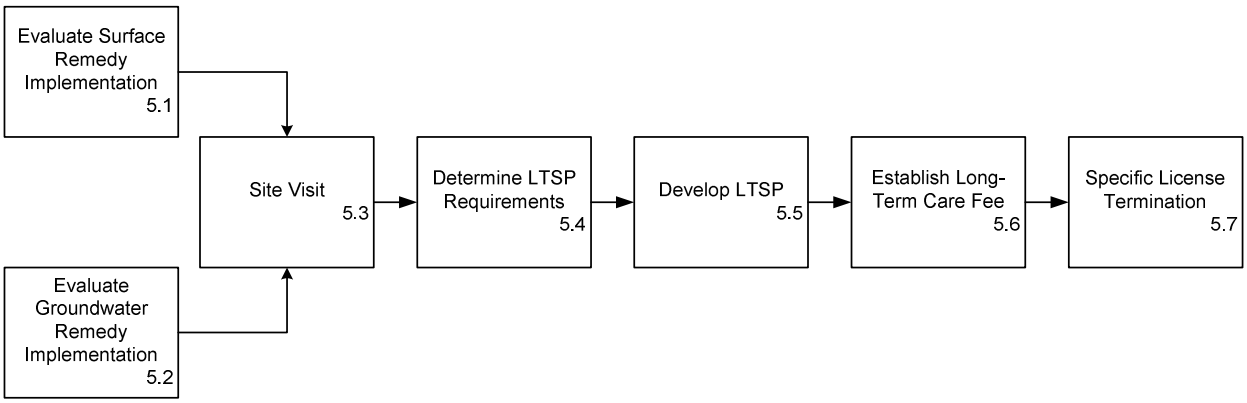

Figure 3. Regulatory Closure Track Flowchart

Regulatory closure activities cannot commence until information on reclamation design, implementation, and final site conditions is obtained from the licensee and regulator. Regulatory concurrence is also essential before the end of these activities. Processes on this track will typically commence before final regulatory closure has occurred.

LM does not have a regulatory concurrence role in determining the adequacy of the remedy design and implementation. However, the *License Termination/Site Transfer Protocol Between the U.S. Department of Energy and the U.S. Nuclear Regulatory Commission* (DOE and NRC 1998), referred to as the Protocol, defines the relationship between DOE and NRC. NRC will consult with LM in reviewing remedy proposals and determining that the remedy is effective.

LM will also interact with agreement state staff and the licensee so that LM will have completed the due diligence evaluation of the remedies and final site conditions by the time the regulator is ready to concur that the licensee's reclamation is complete.

DOE does not have a specific Memorandum of Understanding with Texas, Colorado, Utah, or Washington, which are agreement states in which UMTRCA Title II sites are located. Furthermore, the NRC State and Tribal Programs Office oversees the agreement state programs, whereas the NRC Uranium Recovery Branch oversees the DOE general license at 10 CFR 40.28.

However, the Protocol applies to the activities of all NRC elements, so DOE understands that the NRC State and Tribal Programs Office will consult with DOE on agreement state regulatory activities for closure of the Title II sites.

Technical issues resolution will be achieved through regular interaction between the NRC and DOE operating divisions. Both agencies have protocols for issue resolution if, in the future, the operating divisions agencies cannot reach resolution.

5.1 Evaluation of Surface Remedy Implementation

This activity includes review of the approved design, including engineering calculations to determine design basis events, as well as construction, inspection, verification, and regulatory concurrence documentation. LM will request construction as-built data to support this work, in both paper copy and, if available, electronic formats. The LM/LMS transition team will assess the completeness of the records and request additional information, if necessary. The evaluation process will ensure that site documentation is complete and there are no concerns about long-term integrity or protectiveness. Although not a license requirement, this activity also includes an analysis of vegetation conditions and vegetation management requirements to maintain integrity and compliance with noxious and invasive species laws and regulations.

5.2 Evaluation of Groundwater Remedy Implementation

This evaluation can be conducted in parallel with the evaluation of the surface remedy implementation. It is assumed to occur after the surface impoundment is completed so source control is ensured. Often groundwater compliance entails a period of licensee corrective action after which the licensee applies for ACLs. Licensee groundwater modeling determines the maximum predicted extent of contaminated groundwater, which influences transfer boundaries and post-transition use restrictions. LM requests environmental monitoring data, which are entered into LM systems. LM also requests a copy of the model to evaluate and archive. The evaluation typically will not entail running the model independently by LM support staff if parameters are reasonable, methods are accepted, and the modeling and the regulator compliance reviews are technically defensible.

The LM/LMS transition team will evaluate the licensee groundwater model to ensure that knowledge of site hydrology and model construction is captured for future stewards. The object of the evaluation is to arrive at a defensible conclusion regarding whether the model is representative of the groundwater system and fate and transport of contaminants, as well as whether DOE is at risk for failing to ensure protectiveness and compliance. LM will request access to licensee hydrologic resources to capture and record knowledge of the licensee groundwater compliance process.

5.3 Site Visit

LM and LMS contractor staff may conduct site visits to maintain contact with licensee staff, stay apprised of site conditions, and ensure a thorough understanding of engineered structures and pertinent site features. LM may request that such visits be coordinated with inspection trips to the region. Often, when regulators conduct visits and inspections, LM will be invited as an observer and may participate in the discussions. While DOE has no official role in the regulatory closeout

of UMTRCA Title II sites, the regulators should consult with LM on issues of concern to the long-term steward, such as site boundaries, acceptance of non-11e.(2) materials in a disposal cell, establishing the long-term care fee, and final surface and groundwater conditions. LM should use the visit to assess the site for departures from as-built conditions and maintenance issues that should be addressed before transition.

At the site visit, the LM and LMS site leads can coordinate with the licensee on design and placement of site-specific surveillance features (e.g., signs, monuments, and fencing). Boundary monuments are addressed here and within the real property transfer process. LMS technical leads will provide specifications for the site marker and warning signs. Other requirements for physical site features such as fences, road restoration, and other access controls should be defined through consultation between LM and the licensee. LM will request as-built information for site-specific surveillance features. Specifications for site-specific surveillance features are presented in the *Guidance for Implementing the Long-Term Surveillance Program for UMTRCA Title I and Title II Disposal Sites* (DOE 2001).

5.4 LTS&M Requirements

Long-term surveillance and maintenance (LTS&M) requirements result from evaluations of the surface closure and groundwater remedy. LM will identify procedures for visual inspection of surface features, establish requirements for vegetation management, and define monitoring requirements for groundwater and other environmental media. The LTSP will present a complete monitoring program, specifying monitoring locations, analytes, frequencies, and the rationale for the monitoring program.

Requirements for managing institutional controls (ICs) will be determined through developing and evaluating those instruments during remedy review and real property transfer activities. The requirements will be incorporated into the LTSP.

5.5 LTSP

The LTSP content and format are prescribed in the *Guidance for Implementing the Long-Term Surveillance Program For UMTRCA Title I and Title II Disposal Sites* (DOE 2001), which invokes the requirements of 10 CFR 40.28. The LTSP should contain a summary of the surface closure and groundwater compliance remedies in sufficient detail to allow stakeholders to understand the LM strategy for maintaining protectiveness and should include documentation of regulator concurrence that remedies are protective and that they comply with applicable regulations. The LMS contractor will develop an early draft that will be enhanced as details of remedy implementation and post-closure care requirements are defined, and real property details are available. LM may submit the draft LTSP to the licensee to confirm site details and descriptions. When the licensee remedies are implemented and concurred in by the regulator, and the post-closure care program is well defined, LM will submit the draft LTSP to NRC for review of the technical content (DOE and NRC 1998). The LTSP cannot be finalized until the real property transaction is complete and ownership is documented in the LTSP.

Information for the LTSP is assembled from geospatial and environmental data, site records, and real property activities.

5.6 Long-Term Care Fee

In accordance with the Protocol, NRC will consult with LM on setting the long-term care fee. LM must ensure that costs for nonroutine maintenance and other extraordinary costs for post-closure care are recovered. NRC guidance for setting the long-term care fee is found in NUREG 1620 (NRC 2003).

5.7 Specific License Termination

LM will have expressed any concerns about site conditions or remedy implementation to regulators during the evaluation processes. Therefore, LM understands that when the regulators concur in termination of a specific license, LM concerns will have been addressed.

6.0 Real Property Track

Once the final property boundary is established, work can begin on transferring the real property and other required property rights to DOE. To initiate work, the project submits an RRS form. Real property activities will be directed by the LM realty officer and LMS Real Property Management staff, as directed by the LM site lead in coordination with the LMS site lead.

During transition it is critical that LM confirms the owners of all rights that impact the lands being transferred. LM must confirm the owners of oil and gas, mineral, water, and any other rights within the transfer boundary. LM will not withdraw minerals from land that it does not own, such as land where DOE maintains ICs (DOE 2008). It is presumed that the ICs on privately held land are sufficient to protect human health and the environment and that the withdrawal of federal minerals where ICs are established is not necessary.

Generic processes for transferring different types of real property assets are shown on Figure 4 and described in the following sections.

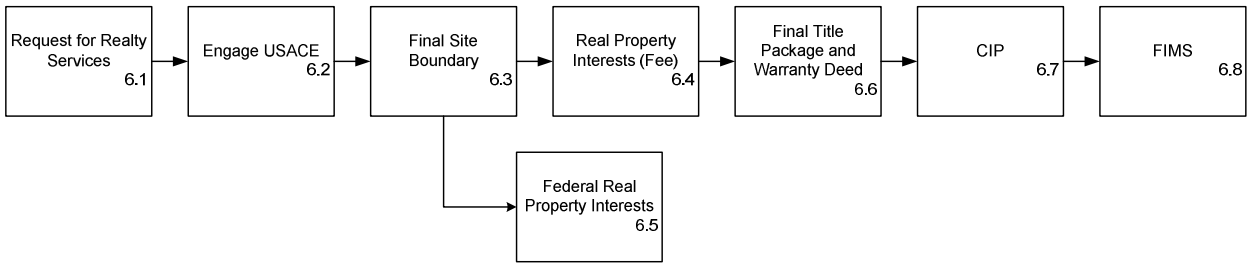

Figure 4. Real Property Track Flowchart

6.1 Request for Realty Services

The RRS form (LMS 2102e) establishes authorization to initiate real property activities. It should be completed approximately 24 months prior to the proposed transfer date and as soon as possible after the site-specific kick-off meeting. The RRS form triggers LM's interaction with USACE. The form and instructions for submittal are available electronically on the LM Portal

and must be signed by the LM site lead and realty officer. The RRS form is provided in Attachment 2.

6.2 U.S. Army Corps of Engineers

DOE retains USACE as its title agent to review all title information provided by the licensee and to prepare a warranty deed for the fee land transfer. LM must provide USACE with a scope of work to acquire the fee land and mineral interests. The LM realty officer will be the primary contact with USACE to facilitate information transfer from the licensee and to track progress in obtaining the requisite lands and interests.

6.3 Final Site Boundary

The licensee will provide the final site boundary survey as soon as is practicable. LM will use this survey as the starting point for the land transfer considerations and also as the foundation for all mapping. Care should be exercised in drawing a distinction between ownership boundaries and the long-term care boundaries. The ownership boundary survey delineates and describes the land that DOE will own in fee or land that it will have jurisdiction over by withdrawal. The long-term care boundary can encompass additional land or real property interests. For example, the long-term care boundary will encompass land subject to ICs. DOE may not own some of the land subject to ICs but would maintain a real property interest in the restriction of uses that are established through the ICs. An example of this distinction is provided on Figure 5.

LM is particularly interested in established ICs. Once it has been determined that there is residual contamination requiring use restrictions, the licensee must establish perpetual and enforceable ICs on lands containing regulated contamination. The ICs may be within or outside the ownership boundary, but they will always be included in the long-term care boundary.

The licensee and other private owners may hold real property interests at the sites, or these interests may fall under the jurisdiction of federal, state, or local agencies. This scenario can be further complicated by the fact that surface and subsurface estates may be severed (i.e., are owned by different parties). It is essential for LM to understand the needs for long-term stewardship and to identify all parties that hold or need rights on transitioning sites. The LMS Environmental Support Services staff will create mapping “layers” that define

- Surface ownership,
- Land agreements (easements, permits, ICs, etc.),
- Water rights,
- Mineral rights, and
- Oil and gas rights.

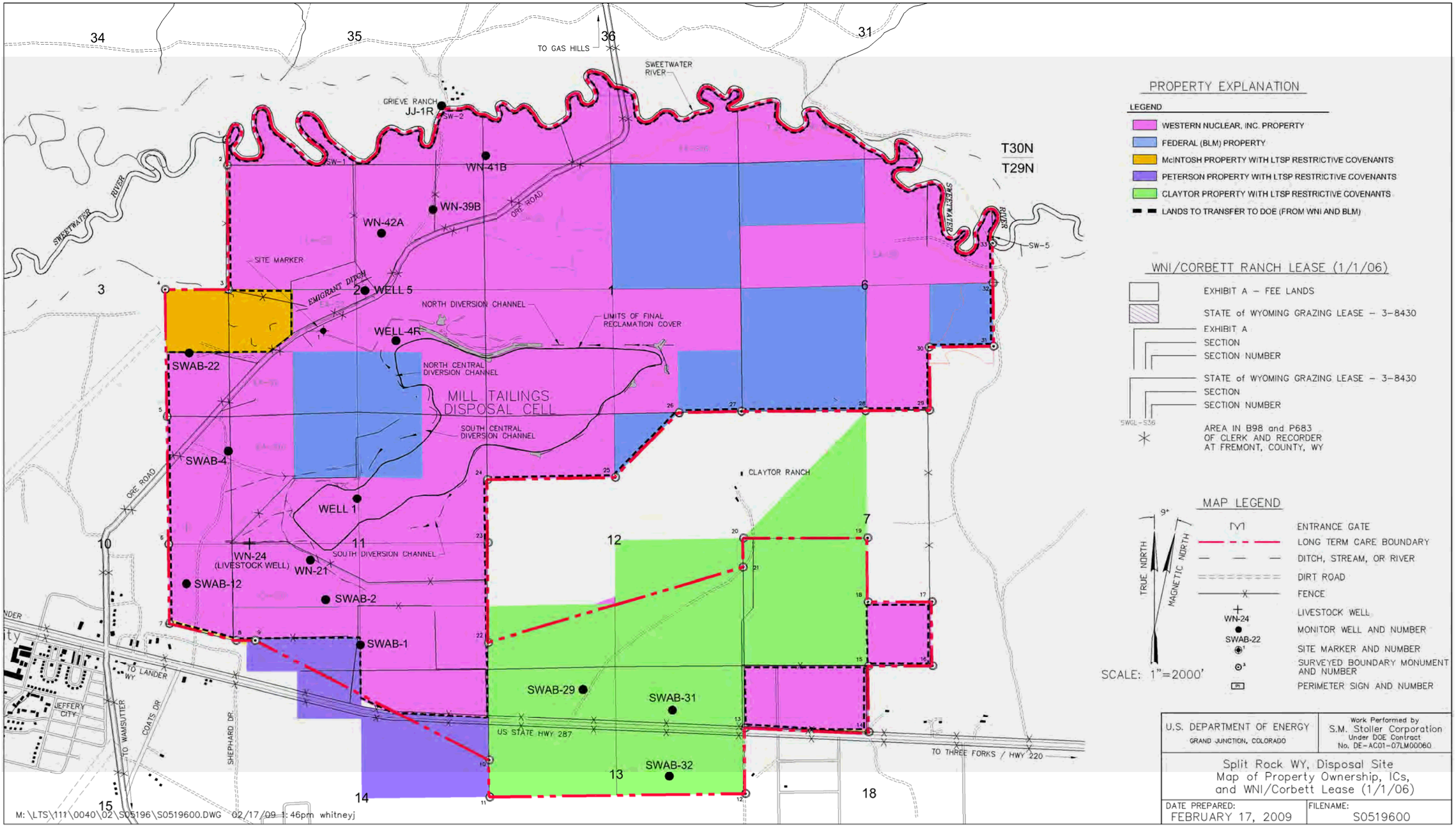

Figure 5. Split Rock Boundaries and Land Agreements

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6.4 Real Property Interests in Fee

For land and mineral interests owned in fee by the licensee, DOE will acquire clear title to the land and mineral interests at transition. Any mineral rights, including oil and gas, held by the licensee will be transferred with the fee land transfer. The licensee will provide LM and USACE with surveys and descriptions of fee and federal holdings within the ownership boundary. The surveys and descriptions will be used for USACE work on the final warranty deed and for LM work on withdrawal of federally held real property interests. Surface or water rights necessary for long-term maintenance will also be transferred. A water right not needed for long-term care will be returned to the agency with jurisdiction over the right.

The licensee must ensure that all real property interests needed for long-term care are in place at the time of transition. This includes access to the site and to off-site wells and sampling locations. If access to the site is acquired from BLM, the licensee must ensure that the permit is transferable to DOE. If access is over private land, the licensee will secure a permanent easement.

The licensee will retain a title agent that meets USACE requirements. The licensee agent will assemble the title package and submit it to USACE. LM will acquire a copy of the title package for an independent review to ensure that all LM's needs are met and to support development of civil and survey base maps. Title packages are only valid for approximately 6 months to 1 year prior to issuing the final warranty deed. Should the transition be delayed, USACE may require an update to the title package.

NRC regulations address the licensee's obligation to secure the mineral rights for all land transferred to DOE in fee. Applicable regulations are at 10 CFR 40, Appendix A, Criterion 11 C, D, and E; and 10 CFR 40.28 (d) (1), (2), and (3). These regulations require the licensee to make a "serious effort" to obtain all outstanding third-party mineral rights. The regulations state that, "in the event they cannot be obtained, a deed notice must be recorded in the local public land records which states that the land is being used for the disposal of radioactive materials and is subject to an NRC license prohibiting the disruption and disturbance of the tailings." Additionally, the regulations indicate that upon application, NRC may issue a specific license permitting the use of the surface and subsurface estate provided that (1) the proposed action does not endanger the public health, safety, welfare, or the environment; (2) the site will be restored in accordance with regulatory requirements; and (3) adequate financial arrangements are in place to ensure that if the waste materials are disturbed, the applicant is able to restore the site to a safe and environmentally sound condition. The "serious effort" to obtain the mineral rights required by the regulations should (1) inform the owners that the surface estate is being used for the disposal of radioactive materials under NRC's jurisdiction, (2) inform the owners of the regulatory protections in place applicable to the disposed materials, and (3) include a defensible "best and final" offer to obtain the minerals that is based on current market valuations.

NRC or the agreement state regulator will review the documentation substantiating the licensee's actions to obtain mineral rights for lands to be transferred and will render a judgment as to the adequacy of the efforts. If rights cannot be secured, and it has been determined that the regulations regarding this have been satisfied (e.g., recorded deed notice), the licensee will send the appropriate documentation to USACE for inclusion in their warranty deed information.

6.5 Federal Real Property Interests

Some transition site boundaries encompass parcels of federal land and minerals that DOE will acquire under separate actions. DOE acquires jurisdiction of federal land within the transfer boundary through segregation and withdrawal. Segregation is used to temporarily reserve surface and subsurface rights until site boundaries are finalized. DOE will withdraw any mineral rights held by BLM. However, all withdrawals are subject to prior existing claims, and LM may have to deal with owners of existing claims on the site. Should the mineral owner ever release or default on a claim, it will not become available for lease, but will become part of DOE's withdrawal. Oil and gas interests on federal lands are not included with other severed minerals, and withdrawal of these rights must be requested separately from withdrawal of other mineral rights. LM will evaluate the presence of leases and the impacts on each site. LM has established a set of conditions that will allow oil and gas lease owners and operators to drill for resources as long as the disposal cell is not disturbed and site integrity can be maintained.

Approximately 2 years before transition, LM will apply to BLM to segregate the requisite real property interests. When the segregation is approved, it will be published in the *Federal Register*. LM must seek protection through segregation as soon as possible to protect future interests while final boundaries and other transition decisions are being made. Timing of the request is critical to maintaining appropriate control of the federal lands and for ensuring that the segregation will not expire before the land can be withdrawn.

The segregation remains in effect for 2 years after publication in the *Federal Register*. During that time, site boundaries must be finalized and the permanent withdrawal executed. Withdrawal is not a condition of termination of the specific license—regulations state that the disposal site land must be owned by the federal government, and this condition is met if BLM remains the jurisdictional agency.

6.6 Final Title Package and Warranty Deed

Through site visits and communication with the licensee, LM and LMS staff will identify all parties who have a real property interest in a site. LM will determine all interests that must continue after transition and those that, while beneficial to local stakeholders, may not be essential to LTS&M. Those that are essential, such as utility easements and other surface easements or rights-of-way, will be checked against the title package to ensure their continuity. It is the licensee's responsibility to ensure that any right of access or other surface right that is required continues in the long term. LM will make a determination regarding other rights, such as grazing licenses, and execute those agreements that are beneficial to LM and other parties.

The LM and LMS Real Property staff will review the title package to ensure that all real property needs are addressed. From the title package, USACE will prepare the final warranty deed and submit it to the LM realty officer for review. USACE will execute the warranty deed on behalf of the U.S. Government and DOE.

6.7 Certificate of Inspection and Possession

The Certificate of Inspection and Possession is a U.S. Department of Justice requirement that must be completed prior to issuance of the warranty deed. It consists of a site inspection to verify

the land description and to certify the condition of the land and improvements by physical inspection. USACE can delegate this activity to the LM realty officer.

6.8 Facilities Information Management System

Once transition is complete, all land transfers, land instruments, and site structures and facilities must be entered into the Facilities Information Management System (FIMS). This is DOE's repository for information to manage real property assets and interests and their associated costs. The LMS site lead will work with the FIMS coordinator in the LMS Real Property group to ensure that all assets and land agreements are adequately captured and reported in FIMS.

7.0 Environmental and Geospatial Data Track

The licensee will provide environmental data, geospatial data, and engineering and construction data for general data evaluation and archiving, and for geospatial mapping applications. With LM site lead approval, LMS data specialists will contact their licensee counterparts. They will work together to identify and gather information needed to ensure an appropriate understanding of past and future needs to meet long-term care requirements and to obtain data for accurate property description and LMS contractor mapping requirements. This information will also include hydrologic models and associated data to facilitate model evaluation and reproduction, if needed. Historical data, current data, and closure data will be requested in any existing format. Both hard copy and electronic media are needed.

The collected electronic data will be converted and merged into several databases managed by the Environmental Support Services group to support transition data needs. Hard-copy data will be incorporated into LM records management systems.

Figure 6 shows how technical data are used during the transition process.

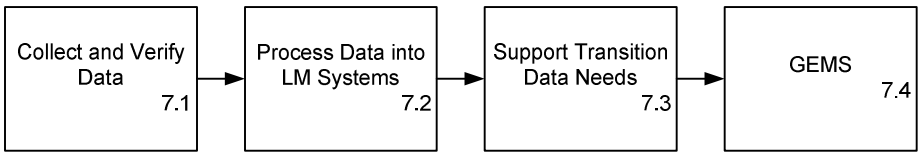

Figure 6. Environmental and Geospatial Data Track Flowchart

7.1 Data Requirements

The following major categories of data will be requested:

- Stamped/sealed land survey (both ownership and long-term care boundary, if different),
- Site mapping features and metadata,
- Engineered systems and structures,
- Environmental monitoring data and associated applications, and
- Groundwater flow, fate and transport models and associated applications.

The environmental data will be used to support evaluation of groundwater compliance and surface closure. Survey and mapping data will be used to finalize the site boundary and support real property transition processes to identify and confirm regulated boundaries and restrictions. Licensee-provided data will also be archived in its original form and incorporated into LM systems.

The licensee data are maintained in several databases in the Environmental Support Services group. Environmental data are kept in the Site Environmental Evaluation for Projects (SEEPro) database and are available for data evaluation and document preparation. Mapping data are stored in geographic information system (GIS) and computer-aided design (CAD) databases, and once validated, they are available for mapping needs and for inclusion in documents and reports.

7.1.1 Official Land Survey and Land Agreements

The licensee will provide an electronic copy of the stamped/sealed land survey and legal description that defines the site boundary. For some sites, the ownership boundary may differ from the long-term care boundary. For these sites, the licensee will provide a copy of each survey. USACE will use the ownership boundary survey for the fee transfer, and the long-term care boundary will be used for long-term stewardship. The LMS staff will plot the survey to ensure that it closes and matches LM's understanding of the boundaries. Real property interests including, but not limited to, land use, easements, rights-of-way, mineral rights, oil and gas rights, water rights, permits, leases, licenses, utilities, and other infrastructure are incorporated into the electronic data management systems. These data will be used to create individual electronic data sets or conceptual "layers" to facilitate understanding of all the rights acquired and granted to others at the site.

7.1.2 Site Mapping Features and Metadata

The licensee will provide detailed mapping information and metadata in electronic format. A single geographic or projected coordinate system for the information is required. Coordinate systems, horizontal and vertical survey control points, and monuments are recorded and plotted. Coordinate system conversion information for modified or local systems is captured and applied. Legal descriptions are entered into CAD software to plot out boundaries. Mapping data include the following:

7.1.2.1 Imagery

LMS staff will acquire imagery, including orthophotography and quadrangle sheets. These will be assembled and added to the appropriate database for future mapping use and for use in documents and reports.

7.1.2.2 Existing and Historical Features

The licensee will provide mapping data that will define political and IC boundaries, vegetation and wetlands areas, structures (buildings, tanks, fences, wells, etc.), topography, contamination areas, geologic units, water features, easements and rights-of-way, property ownership (including surface and mineral ownership), land use, transportation, utilities, and features of historical significance.

7.1.3 Engineered Systems and Structures

The licensee will provide drawing sets or documents associated with sitewide and remedy systems for transition. This includes final design drawings, design specifications, and as-built drawings of physical structures on the site, and operating manuals and procedures of any treatment systems.

7.1.4 Environmental Monitoring Data

LMS staff will identify required monitoring data, and the licensee will provide environmental monitoring data, databases, and data sets. This will include sampling locations, analytical chemistry and radiation data, water levels, well and borehole construction data and logs, permit data, automated measurements, pumping/flow data, ecological data, sampling plans, and standards. These data will be converted, checked, and merged into SEEPro.

7.1.5 Groundwater Flow, Fate and Transport Models

LMS staff will obtain detailed information and metadata for the following in electronic format: hydrology and flow and transport models with associated reports; related existing features, including topography and contamination areas of water and soil; geology, and historical features of significance.

If any of the above data supplied by the licensee require separate technical information management systems to retrieve it; the licensee will provide the systems associated with the data. LMS staff will capture and archive necessary software, including documentation, source code, and license agreements for those systems.

7.2 LM Databases

During the transition process, the acquired electronic technical data will be organized, converted, merged, and stored in LM data management systems managed by the Environmental Support Services group. The systems encompass SEEPro, the GIS with related geodatabases, and the electronic directory system of engineering and construction designs and as-builts.

Analytical chemistry of sampling locations and depths, field sample measurements, units of measure, water levels, and well construction data will be verified, cross-matched, converted, and stored in the SEEPro database. Mapping data are stored in GIS and CAD data models. All survey, land agreement, and infrastructure data will be reviewed by LM and LMS site leads and other appropriate support staff. Once validated, the site surveys and other mapping data are available for mapping needs and for inclusion in documents and reports.

Licensee-provided data will also be archived in its original form.

7.3 Support Transition Needs

The environmental data will be used to support evaluation of groundwater compliance and evaluation of surface closure. Survey and mapping data will be used to finalize the site boundary

and support real property transition processes to identify and confirm regulated boundaries and restrictions. Data converted into the SEEPro database becomes available for data evaluation and document preparation.

The technical data will also be used during the transition process to determine LTS&M requirements, to write the LTSP, and to review remedy effectiveness with NRC. After site transition, the same data management system established during transition activities will support long-term stewardship activities such as future designs, future documents, and the Geospatial Environmental Mapping System (GEMS) website.

7.4 GEMS

At transition completion, the LMS Environmental Support Services staff will ensure that all environmental and mapping data are ready for inclusion on the GEMS website. GEMS was designed to provide dynamic mapping and environmental monitoring data display for LM sites. Users include LM staff, stakeholders, regulatory agencies, contractor staff, and members of the public.

8.0 Documents/Information for LTSP Preparation and Permanent Site Records

Once record information is received, it will be coded into the appropriate category in the file plan and placed on the share drive for easy access, and the hard copy will be sent to the Records Management group for retention. If received electronically, data should be downloaded and a copy sent to the Records Management group. Real property data should be directed to the LMS Real Property group for proper coding and disposition. Electronic environmental monitoring and geospatial data should be forwarded to the LMS Environmental Support Services group for appropriate disposition and retention. The following documents should be requested from the licensee to facilitate transition activities and for retention in the site record collection.

- Reclamation Plan, including design-basis documentation and engineering calculations.
- Site history (summary history of site operations and previous owners).
- ACL application and supporting documentation, if applicable.
- Description of groundwater model and model files.
- Groundwater monitoring/data report.
- Water Sampling and Analysis Plan.
- Aerial photograph of site after reclamation is completed.
- As-built drawings.
- Environmental Assessment report, or equivalent.
- Adjacent property ownership maps, including any rights-of-way across site property, if applicable.
- Final, postreclamation site topographic map.

- Well completion logs for all wells transferred to DOE.
- Legal description of final "restricted area" boundaries.
- Title documentation.
- Specific reports on hydrogeology and geology of disposal site area.
- Construction completion report.
- Completion Review Report (agreement states only).
- Electronic file for geospatial, environmental, and design data.

Additional needs for site-specific information may develop during the site transfer process, and the licensee may be asked to provide additional documents.

9.0 Project Management and Control Tools

9.1 Project Schedule

The project schedule is developed during the planning phase of the project and is integrated into the task plan schedule baseline to define the critical path for major project activities. The project schedule also indicates the anticipated duration for each activity, which is the main tool to help maintain project schedule. The actual project schedule may not be as detailed as shown in Attachment 1 because the transition process was deconstructed in the attachment for descriptive purposes, whereas the project schedule will reflect actual work packages developed for the task plan.

9.2 UMTRCA Title II Transition, Status, and Remaining Scope—Monthly Updates

Generally, this document is updated monthly for internal distribution to all transition team members for all Title II sites. It covers the primary categories of issues (e.g., regulatory status, real property, groundwater) and provides an overview of activities in each of the categories. This update provides the status of transition activities for the Title II sites to the LM staff and helps each transition team member stay abreast of issues that may impact final transition. The document also identifies LM staff, LMS site leads, and licensee contact information. Attachment 3 is an example of this update.

9.3 Site-Specific Punchlist

The site-specific punchlist is an internal tool used by the LMS transition team to track individual actions. It lists the details of the action, who should track it (accountability) and the anticipated completion date. It has columns of green, yellow, and red to indicate where effort must be focused. Indicators in the green column signify that actions are progressing as planned, whereas a check in the yellow column shows that an action may require special attention. A check in the red column is an indicator that this outstanding action will most likely impact the ability of the site to transfer at the anticipated time. Items in the red column should be discussed with the

LM site lead to determine future actions. An example of a site-specific punchlist is shown in Attachment 4.

9.4 Site Transition Framework

The Site Transition Framework is an LM policy document that outlines the issues common to all site transitions that must be addressed during the transition process. It was originally developed to accommodate transitions between DOE's Office of Environmental Management and LM. While many sections of this document are not directly applicable to Title II sites because they are transferring from private sector owners, it is a high-level guide that provides a reference to transitions in general. The Site Transition Framework is included as Attachment 5.

9.5 Title II Transition Checklist

This checklist is a subset of the detailed checklist that was originally developed for transition of large sites (e.g., Rocky Flats, Colorado) into LM. The nonapplicable sections from the larger checklist have been removed to generate a checklist that is more consistent with Title II transition requirements. This checklist is useful to identify all issues that could potentially impact a Title II transition and subsequent LTS&M. It should be used in the planning phase to identify actions that will either contribute to the transition or actions that, if not completed, could impede successful transition. Attachment 6 is an example of the Title II transition checklist.

10.0 Quality Assurance

The LMS contractor's quality assurance program applies to the LMS Title II transition project. Specific quality assurance for LMS contractor technical products is enhanced through the standard practices described below. These practices are generally not documented formally for project records.

- Inclusion of pertinent staff. The LMS site lead will ensure that significant recommendations provided to LM have been reviewed by appropriate LMS contractor staff to ensure consideration of all aspects of transition.
- Technical reviews. Significant LMS contractor technical products will be peer-reviewed by other contractor SMEs and other project staff. Reviews may be performed on real property instruments, technical reports and analyses, and planning documents.
- Real property data validation. The Environmental Support Services and Property Management groups will coordinate activities to ensure a consistent and validated data set. Property Management and Environmental Support Services staff will consider other data uses and incorporate utility into their systems (e.g., for FIMS data management). Geospatial data are managed according to internal procedures and procedures implemented by the Environmental Support Services organization that ensure data quality, security, and integrity are maintained.
- Technical products and transition activity conformance with DOE policy and procedures. Applicable guidance documents are presented in Section 12, "References." Specific transition guidance was developed to address the transition of sites remediated by the DOE Office of Environmental Management. The Site Transition Framework (Attachment 5)

prescribes a transition process that conforms to the DOE orders governing real property management and legacy workforce obligations, as well as LTS&M requirements. The Title II Checklist (Attachment 6) was developed to incorporate lessons learned from the transition of the Rocky Flats, Colorado, site to LM. This instrument captures the technical requirements for site transition to ensure that site knowledge is captured and protectiveness is maintained. The larger checklist was reduced to those sections applicable to the UMTRCA Title II site transition process, and the Title II Transition Checklist is used as a "tickler" for development of the site-specific punchlist.

- The LMS contractor site lead will provide technical oversight.
- Lessons learned sessions for incorporation into ongoing work. Informal critiques will also be conducted among LMS contractor staff. These measures are a part of the LMS contractor culture and constitute one source of quality improvements.
- LM participation in quality assurance activities. The LMS contractor suggestions for improvement will be conveyed to LM staff.

11.0 Lessons Learned

Each site that transitions involves different issues to be resolved, but there may be valuable lessons to be learned from what has already been experienced in previous or currently ongoing site transfers.

Project Management Track Lessons:

- Securing Site Information, Losing Site Knowledge—These are two issues that can be addressed by securing as much site information as possible as early as is practicable in the transition process. As the sites get closer to transition, licensee staff members are reassigned or are no longer available as sources for institutional knowledge of site information. Licensee contracts for hydrology consultation may be closed. Often new staff members are assigned to handle final closure details and are unable to address questions or concerns. Also, as the offices close, records may be transferred to other locations or lost. This leaves gaps in potentially important site knowledge. It is helpful to have groundwater modeling data and to have the models archived along with the historical monitoring data. New data and observations can be compared against the model predictions. Further, this helps LM understand how the site ACLs were developed to ensure continued protectiveness. Also, a thorough review of historical groundwater monitoring data against established site standards allows for detection of post-transitional noncompliance problems.

  This applies to each site with ACLs and was particularly pertinent to the Panna Maria, Texas, and Shirley Basin South, Wyoming, sites.

- Early Communication in the Transition Process—Because a site will be transferred to LM for long-term custody and care, it is important that LM be given the opportunity to comment on documents and decision-making that may potentially affect the site's long-term care, recognizing that NRC has regulatory authority over the site. Examples of such site documents and associated decision-making include disposal cell design plans and construction reports, reclamation plans, completion reports, ACL applications, Environmental Assessments, changes to groundwater standards or points-of-compliance, designation and implementation of ICs, agreements regarding site use, outgranted rights

(owner gives easement or other rights to another party), and subsurface minerals. As appropriate, to further this communication, LM should be included on distribution or provided copies of all subject correspondence and documentation in which LM has an interest. LM acknowledges that NRC posts all docketed materials on their public access website, and for many communications it is incumbent upon LM to obtain pertinent documentation without assistance from the licensee or regulator. Because NRC has authority over the site, and because a licensee may have concerns about "answering" to DOE as a second federal agency, LM should submit all significant comments and concerns about pre-transition site actions through NRC or the agreement state regulator. LM will track the progress of regulatory closure through quarterly meetings and may participate in NRC site visits when invited. During the active transition period (i.e., 2 years), regular and continual discussions among all parties to the transition will enable concerns to be addressed and resolved in a timely manner. LM will conduct due-diligence reviews of remedy implementation concurrently with the regulatory closure process such that all concerns are communicated and addressed before transition.

- Timing and Delays in Transfer—More often than not, transition activities have been halted or delayed as a result of unforeseen regulatory issues. This diminishes the ability of DOE to efficiently conduct the transition process, schedule resources, and direct subcontractor (e.g., USACE and LMS contractor) activities. Delays have resulted from licensee difficulties in achieving compliance, regulator scheduling, and changing uranium market conditions. DOE has no control over these issues. Nonetheless, DOE endeavors to assess and predict the potential for delays to occur and to plan accordingly, while leaving flexibility in resource allocation to respond to changes in transition priorities.

  Current and proposed LMS task plans reflect assumptions that address delays. The 2-year transition process is planned to begin in the fiscal year preceding the planned transition year, and LTS&M activities are now assumed to begin in the year following the transition year. (Previously, LTS&M activities were assumed to commence in the year of transition in case the transition occurred early in the fiscal year.) Also, DOE will obtain formal communication of transition dates from the licensee, and will then apply acquired knowledge of regulatory closure processes to determine realistic transfer dates. Licensees have been informed of the consequences of commencing and then halting the transition process, including lapses between segregation and withdrawal of federal real property and the potential for having to address third-party property rights, and resource limitations at USACE.

  DOE will remain in close communication with licensees and regulators to stay apprised of issues and use the change control process to respond to delays when the schedule changes impact transition dates and resource allocation.

Regulatory Closure Track Lessons:

- Due Diligence—Licensing regulations stipulate that DOE will suffer no cost for long-term custody and care except for the administrative cost of transfer. Therefore, LM may elect to review remedy design and implementation to confirm there will be no unanticipated costs to maintain site integrity and protectiveness after transfer. Confirmation entails reviewing and evaluating the technical basis for remedy decisions and remedy implementation. This may include:

  — Reviewing hydrology and contaminant distribution in groundwater, as well as modeling predictions and monitoring requirements, to arrive at an independent appraisal of model

validity and to ensure that LM will not have to respond to exceedences of applicable groundwater standards or acceptable risk.

— Reviewing the actual and predicted performance of a surface closure to reduce the likelihood that LM will have to respond to threats to the impoundment integrity from such occurrences as erosion and riprap degradation.

— Reviewing potential exposures and associated controls to determine the adequacy and enforceability of controls in place at transition.

The prudence of uniform exercise of due diligence before transfer is indicated as a result of several recent occurrences:

— Severe erosion occurred at the L-Bar, New Mexico, site. A sediment trap is filling, threatening off-site sediment transport and potentially compromising storm water diversion away from the cell. LM will correct the erosion by hardening structures.

— Groundwater monitoring results exceeded ACLs at the Shirley Basin South, Wyoming, site. LM installed additional monitor wells to obtain sufficient data to reevaluate site groundwater and to demonstrate that contaminated groundwater has not migrated off site.

LM bore the full cost of these responses.

Real Property Track Lessons:

- Timing of Segregations and Withdrawals from BLM—Transition dates must be monitored continuously to ensure that the federal and fee land transfers converge for a fixed transfer date. Site transitions rarely happen at the originally projected transition date. If there is fee and federal land to be transitioned, timing of the segregation and withdrawal of the federal land and mineral portion to coincide with the fee land transfer can be difficult. The segregation is a 2-year action that suspends mining and mineral leasing on the land (subject to prior existing rights) and puts the public on notice that some of the rights on either all or a portion of the segregated land will transfer to DOE. The 2-year time frame gives BLM time to address any comments from the public, provides protection of the resources to be withdrawn, and gives LM the opportunity to establish a final transfer boundary. When the withdrawal is complete, as signified by issuance of a Public Land Order and publication in the *Federal Register*, the jurisdiction of the requested rights transfers to DOE. If DOE secures a withdrawal of the federal land portion, and the transfer does not happen (i.e., the site is sold or reopened for activity), DOE would have rights it neither needs or wants. Should the federal land transfer be only in the segregation stage, the segregation can simply expire, and the land would stay in BLM's inventory of public land. There could be risk to DOE if there is no mechanism such as a segregation in place to protect the real property interests (i.e., minerals), and others may establish real property rights. These rights would become senior to DOE's should a segregation and withdrawal be needed in the future.

  This situation occurred for the Lisbon Valley, Utah, site. With a firm transition date communicated by the licensee, DOE applied for, and was granted, a segregation of the federal land portion. Subsequently, the licensee announced an agreement to sell the site for resumed uranium production. DOE did not apply for the withdrawal and will wait until the licensee again seeks termination of their specific license and transfer of the site to DOE.

- Senior and Other Real Property Rights—In many states the surface and mineral estates are severed. This means that the subsurface interests do not run with land and may have

different owners. For privately held land at the Title II sites, the licensee may not own all of the mineral interests under the surface of the land they will transfer to DOE. For federal land, subsurface interests such as mineral and oil and gas rights may be held by others prior to DOE asking for the withdrawal of mining and mineral leasing. According to NRC regulations, the licensee must make a serious effort to secure the mineral estate under the private land to be transferred. Should the licensee be unsuccessful, the regulations state how this is to be addressed (a deed notice must be filed stating the land is being used for disposal of radioactive materials and is subject to an NRC general license). BLM is obligated to administer active leases on the federal land transfers that are senior to DOE's withdrawal. It is essential for all parties to know and understand NRC's and DOE's protections against interference or encroachment on disposal cells and the associated structures. Protections can likely be found in federal and state regulations.

This situation occurred for the Maybell West, Colorado, site. The site licensee made the "serious effort" required by the regulations but was unable to secure all the subsurface interests. Protection for the disposal cell against future activity is afforded in NRC regulations and in State of Colorado mining laws. In their best and final offer, the licensee advised the mineral rights owners of those regulations, which require actions that might prove difficult or expensive should they choose to exercise their rights.

12.0 References

10 CFR 40, U.S. Nuclear Regulatory Commission, "Domestic Licensing of Source Material," Appendix A, *Code of Federal Regulations*, January 1, 2009.

10 CFR 40.28, U.S. Nuclear Regulatory Commission, "General License for Custody and Long-Term Care of Uranium or Thorium Byproduct Materials Disposal Sites," *Code of Federal Regulations*, January 1, 2009.

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